SUBJECT: Mission Services Customer Forum (MSCF) Meeting

DATE: November 15, 2001

PLACE: Goddard Corporate Park (GCP), Room B1-D04

TIME CONVENED: 1:00 p.m. **TIME ADJOURNED:** 5:00 p.m.

ATTENDANCE

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I. INTRODUCTION

Mr. Al Levine (NASA/GSFC) convened the first Mission Services Customer Forum (MSCF) meeting on November 15, 2001. Mr. Levine stated that the MSCF would replace the Network Operations Discussion (NOD) meeting forum that was previously conducted at Goddard Space Flight Center (GSFC). The intent of the MSCF is to improve communications with customers who use the Ground Network (GN), Space Network (SN), Flight Dynamics Facility (FDF), and other services. There will be discussions with customers regarding available GN/SN services and plans, as well as issues of concern to them and the service providers. Mr. Levine noted that not all issues would be resolved at the meetings. Action items will be assigned and teams will be formed to resolve the issues brought up. Mr. Levine also noted that JPL issues would not be worked within the MSCF forum.

Following Mr. Levine's introduction, Mr. Phil Liebrecht (Head of the Mission Services Program Office) addressed the MSCF group. Mr. Liebrecht stated that the MSCF is a great beginning effort to discuss common expectations between suppliers and customers. Mr. Liebrecht stated that he hopes to see good relationships developed between suppliers and customers as a result of this forum.

II. ENTERPRISE PLANS – EARTH SCIENCE

Mr. Paul Ondrus (Earth Science Mission Operations Project Manager) presented Earth Science enterprise plans. Mr. Ondrus discussed Code Y mission dates. Aqua launch is scheduled for March 2002; Aura is scheduled for early 2004; Icesat is scheduled for December 2002; and NPP/NPOES is scheduled for May 2008. Operational challenges include integrating the PM constellation (led by Aqua), maintaining cost-effective operations, adapting the infrastructure and its supporting cast, and making the polar GN sites reliable under heavy use. Regarding issues, the number one problem is cost. Mr. Ondrus stated that Earth Science would like to get a feel for where they are regarding costs and develop "predictive metrics." Code 450 does not have a viable cost plan for '02. Costs for FY03 are needed next month. This will be a big challenge. A secondary issue is the Polar Network; every mission will require the development of a "Tiger Team." A third issue is NISN costs and requirements tracking. NISN has three databases that are inconsistent. Also, performance for communications is not rolled into the total tracking Network performance. Regarding challenges, Mr. Ondrus stated that a plan for infrastructure enhancements is needed. Also, there is a need to develop a forward-looking planning activity. There is a need for a higher level of automation to avoid obsolete facilities. A five- to ten-year plan needs to be developed. This issue includes putting together a group to work LAN cost issues.

III. ENTERPRISE PLANS – SPACE SCIENCE

Mr. Ron Mahmot (Earth Science Mission Operations Project) presented Space Science enterprise plans. Mr. Mahmot provided an Office of Space Science (OSS) organization overview. The OSS is reorganizing. GSFC is responsible for the Origins and Structure

and Evolution of the Universe (SEU) science themes. Mr. Mahmot stated that every two years, the OSS forms a team of experts to look at mission sets from a science theme. The team looks at science that has been done and future plans. They then work missions based on priority and make recommendations for those missions. It is then up to NASA HQ to decide how to pursue those recommendations.

Mr. Mahmot stated that GSFC Project Management is responsible for two science programs currently in the development stage: Explorer missions and Solar Terrestrial Probes missions. Mr. Mahmot noted that thirty to ninety days into a mission, mission responsibility shifts from development personnel to operations personnel.

Mr. Mahmot discussed major NASA space science launches from CY94 to CY04. Launches between CY01 and CY04 include TIMED (CY01); HESSI, GALEX, and CHIPS (CY02); SWIFT (CY03); and STEREO and FAME (CY04). Regarding current SSMOP missions, Mr. Mahmot stated that funding for IMP-8 ended in October 2001. There is no funding available for SAMPEX after FY02. Scientists are recommending taking the funds from FY02 and extending the mission out another two years.

Mr. Mahmot also discussed SSMOP Tracking Network concerns. One major concern is the GN availability to support TRACE, FAST, SWAS, and SAMPEX once AQUA comes online. Another major concern is that there is not a single point of contact at GSFC to deal with DSN issues. Mr. Mahmot noted that there is currently no ICD between GSFC and the DSN. An action item was assigned to Ms. Shuby Ambardekar and Mr. Jon Walker to initiate the generation of a GSFC/DSN ICD (Action Item MSCF-11-15-01).

IV. HUMAN SPACEFLIGHT

Mr. Bruce Schneck presented enterprise plans for Human Spaceflight. Mr. Schneck discussed the Space Shuttle mission manifest, noting that five visits will be made to the International Space Station (ISS) in the near future. Mr. Schneck also discussed ISS visiting vehicles. Autonomous Transfer Vehicle (ATV) compatibility testing is scheduled to begin on January 7, 2002. ATV is currently scheduled to launch in September 2002. The H-II Transfer Vehicle (HTV) is scheduled to launch in September 2004. Mr. Schneck noted that during critical HTV support periods, the HTV would require 2 TDRS antennas for SSA support.

Mr. Schneck also discussed the Space Shuttle External Tank (ET) Observation Camera. Support will be provided by the GN. MILA installation is complete. Equipment racks should be completed by the end of November 2001.

Mr. Schneck also discussed ISS programmatic changes. There is a proposal to upgrade ISS Ku-band to 25 Mbps on the forward link and 75 Mbps on the return link. Mr. Schneck noted that the return link would eventually be upgraded to 150 Mbps. For the upgraded forward and return link requirements, the Network will need to change the

NISN circuits and interfaces. Mr. Schneck noted that funding issues might nullify the proposal to upgrade ISS Ku-band.

Mr. Schneck stated that during the past several Shuttle missions, a lot of problems have been experienced with the MIL backup command line. It appears that the problem is at KSC. The problem is under investigation.

Mr. Schneck stated that Dryden Flight Research Center (DFRC) is currently in the process of re-building their runway. Because of this, an alternate runway is needed. White Sands Space Harbor (WSSH) is being considered as the alternate. There are several issues that need to be worked, including the installation of UHF equipment at WSSH. An in-house meeting to discuss this issue was conducted at GSFC on November 9, 2001. GSFC is preparing to meet with KSC and JSC representatives to discuss this issue further.

Mr. Levine asked Mr. Schneck if there have been any changes in policies for Virtual Spacecraft use. Mr. Schneck stated that a meeting is scheduled for Monday, November 26, to discuss Virtual Spacecraft use during STS-108.

V. SPACE NETWORK

Mr. Richard Schonbachler (SP&M Mission Commitment Manager) discussed current status of the Space Network. Mr. Schonbachler provided an overview of the Mission Commitment Office at GSFC (Code 451). The head of the Customer Commitment Office is Jon Walker. Mr. Schonbachler also noted that there are two types of Tracking and Data Relay Satellites (TDRSs): first generation, which consists of F-1 through F-7; and second generation, which consists of F-8 through F-10.

Mr. Schonbachler also provided a service summary/system capacity overview. Mr. Schonbachler stated that the ground system at WSC has not been upgraded to support 800-Mbps Ka-band. Currently, WSC can only support 300-Mbps Ka-band.

Mr. Schonbachler discussed the present TDRS constellation. TDRS-8 is currently at 150^0 W and will transition to 171^0 W soon. F-7, which is currently at 171^0 W, will be turned off and put into storage mode prior to this transition. TDRS-H launched on June 30, 2000, and was accepted by NASA from Boeing Space Systems on October 17, 2001. TDRS-I is scheduled to launch No Earlier Than (NET) December 2001. TDRS-J is currently scheduled to launch in October 2002.

Mr. Schonbachler briefly discussed virtual spacecraft support. Mr. Schneck noted that HSF is pushing for the utilization of virtual spacecraft during the STS-108 mission. Regarding Servicing Missions, Mr. Schneck stated that GSFC would contact JSC regarding using virtual spacecraft for HST.

Mr. Schonbachler discussed ground segment support. Mr. Schonbachler noted that the ground terminal at Guam cannot currently support TDRS-H, I, J. Mr. Schonbachler also

discussed the Space-to-Ground Link Terminal (SGLT) configuration at WSC. Mr. Schonbachler stated that every system within a SGLT has a prime and redundant chain. This makes for an excellent proficiency rating at WSC.

Mr. Schonbachler discussed operations. Ground segment operations are constantly monitored by the Communications Services Controller (CSC) at WSC. The CSC works with the customers on anomalies that the system cannot take care of automatically.

Regarding Network Control operations, the Automatic Conflict Resolution System (ACRS) will move from the NCC to WSC. The ACRS is used for forward and return link mutual interference prediction. Mr. Schonbachler also briefly discussed scheduling at the NCC, noting that there is a forecast period, active period, and conflict resolution period.

Mr. Schonbachler also discussed mission support. Regarding mission planning, Mr. Schonbachler noted that the Computer Link Analysis System (CLASS) is used for static link margin analysis. CLASS provides dynamic link analysis of actual trajectory/orbit to determine TDRS coverage periods.

Mr. Schonbachler discussed technology. Mr. Schonbachler stated that the SN WWW Services Interface (SWISI) would be available in March 2002. The SWISI will allow users to schedule the SN from a laptop using Netscape or Internet Explorer. The WSC TCP/IP Data Interface Service Capability (WDISC) works hand in hand with the SWISI. The WDISC provides TCP/IP connectivity for TDRSS command and telemetry services. Data interfaces are available to both open and closed IONet NISN circuits. WDISC schedules are currently submitted verbally or by a briefing message to the NCC. Mr. Schonbachler stated that the WDSIC is currently used for the Long Duration Balloon Project (LDBP) mission and is a viable alternative for any low-budget mission.

Mr. Schonbachler stated that the Demand Access Service (DAS) would be available in April 2002. DAS provides MA return services for extended periods at a relatively low cost. MA forward is not available.

VI. GROUND NETWORK

Mr. Steve Currier (Ground Network Manager) provided a Ground Network (GN) overview. The GN supports a mission support list of approximately 40 spacecraft, including Space Shuttle and International Space Station. Services include telemetry, tracking, command, and voice communication. The NASA Orbital Tracking Network is comprised of the following stations:

a. Alaska Synthetic Aperture Radar Facility – Fairbanks, Alaska.
b. Alaska Ground Station – Poker Flat, Alaska.
c. McMurdo Ground Station – McMurdo Station, Antarctica.
d. Merritt Island Launch Annex – Merritt Island, Florida.
e. Ponce De Leon – Ponce De Leon, Florida.

f. Wallops Ground Station – Wallops Island, Virginia.
g. Santiago Tracking Station – Santiago, Chile.
h. DataLynx Services - Poker Flat, Alaska.
i. Universal Space Network – North Pole, Alaska.
j. Space Data Services, Archipelago of Svalbard, Island of Spitzbergen, Town of Longyearbyen.

Mr. Currier reviewed resources (i.e., antennas and systems) available at each station. It was noted that not all station resources were listed in Mr. Currier's presentation. An action item was assigned to Mr. Currier to update the commercial resources in his presentation and present it at the next MSCF meeting (Action Item MSCF-11-15-02).

Mr. Currier also discussed the Wallops Test Range and Bermuda Station closure. Mr. Currier noted that the Bermuda Tracking Station was closed in September 2001.

There was a discussion regarding the 9-meter antenna at WLPS. Mr. Currier stated that a cost benefit analysis is being worked to determine whether capabilities should be shifted to the 11-meter antenna or whether the 9-meter antenna should be kept operational. A decision is expected by January 1, 2002. When plans are finalized, Mr. Currier will update the MSCF group.

VII. PROJECT SERVICE LEVEL AGREEMENTS

Ms. Shuby Ambardekar (GSFC CSR Manager) reviewed Project Service Level Agreement (PSLA) status for future missions. Ms. Ambardekar stated that there are no major PSLA issues at this time. There are some minor radar and SN support issues being worked with TIMED, Jason-1, and SAGE-III. Also, there is no Mission Operations Agreement (MOA) in place for Ariane-4 support. This needs to be worked. For WIRE, a PSLA is being written by Pat Krauss/Mission Director. For Aura, comments are still needed by Ms. Angie Kelly. Ms. Ambardekar noted that CSRs are currently reviewing FY02 prices with customers. Therefore, FY02 PSLA status with prices and signatures will be reported at a later time.

VIII. DSMC STATUS

Ms. Cathy Barclay presented Data Services Management Center (DSMC) status. The main driver of the DSMC initiative is cost savings. Cost savings will be achieved by relocating and consolidating functions. Ms. Barclay discussed system terminology, noting that system names will remain the same. Changing system names will cause documentation problems, etc. System names may change once systems at WSC are re-engineered. Ms. Barclay stated that all functions remaining at GSFC would be in the Mission Support Center in Building 13.

Ms.Barclay stated that the transition from the NCC and Wallops to WSC began last year. The Performance Analyst (PA) and Technical Manager (TM) functions at NCC have already moved to WSC and have been assumed by the Operations Supervisor (OS). The

WOTIS at WFF has moved to WSC and is housed at STGT. GN Automated Scheduling has slipped about one month to February 21, 2002, due to travel-related training issues. This will have some impact.

Ms. Barclay stated that to complete the transition, the 2-flight rule (STS) would be complied to (i.e., 2 flights that the DSMC is prime). STS-111 is the target flight for the DSMC to be fully operational.

Ms. Barclay stated that the prime NCCDS has been at WSC since August 2001. Testing will be complete by the end of January 2002. Some problems have been encountered with the new firewall. To facilitate testing, a remote interface is being implemented.

Ms. Barclay noted that UPS connections at JSC would not be ready until January 2002. Ms. Barclay is coordinating with JSC on this issue. Ms. Barclay also noted that Mr. Jim Cappellari/FDF has been providing vector management training to WSC personnel. Training has gone well.

Regarding operations changes, the standard call signs for scheduling will change. IP addresses for DSMC will be different. E-mail addresses for DSMC scheduling will be different. These changes and others will be reflected in a consolidated STDN Operations Interface Procedure (OIP) document.

Regarding documentation, Ms. Barclay noted that a team has been formed to update documentation for the DSMC initiative. The team is headed by Mr. Steve Testoff/IDM Project Manager. Ms. Barclay stated that there is a lot of duplication in OIPs, NOPs, TNOSPs, NOSPs, etc. The team will work on streamlining the documentation to avoid redundancy. The team is also working on identifying document ownership.

Ms. Barclay discussed NCCDS cutover goals. The cutover will be executed during a period of normal customer support with no critical customer or Network activities ongoing. The cutover will be similar to the process for failover to the ANCC.

Ms. Barclay discussed fallback plans. There are two fallback plans: a near-term plan and a long-term plan. With the long-term plan, WSC Operations and Maintenance personnel would be required to travel back to GSFC to operate the NCCDS. The DSMC Project is doing their best to avoid this scenario.

Ms. Barclay also discussed NCC functions remaining at GSFC. Functions remaining at GSFC include:

a. Network Testing and Special Operations Support (SMM/NOM) and NASA Monitoring.
b. Ground Communications Center.
c. NCCDS Software Engineering.

IX. FDF STATUS

Mr. T. Thompson discussed Flight Dynamics Facility (FDF) status. The FDF Operations Analysts have transitioned from 24/7 support to day shift support (8 a.m. to 5 p.m. M-F, except Holidays). Support for critical events (launch, landing, critical maneuvers) will continue to be staffed. Also, mission risks are now mitigated by a revamped escalation process. Facility risks are mitigated through automated problem detection and paging.

Mr. Thompson noted that FDF would move from GSFC Building 28 to GSFC Buildings 13 and 25. Operations and some other personnel will housed in Building 13; the remaining personnel and a limited backup capability will be in Building 25. The move will be phased with the move of Building 13 functions to WSC (mid- to late 2002).

X. CUSTOMER SUPPORT RESOURCES

Mr. Al Levine (Service Planning and Analysis Manager) discussed customer support resources. Mr. Levine stated that current customer space communications service commitments would continue to grow over the next several years. GN is planned for modest expansion in customer support in 2002. SN continues to expand, though at a slower rate. GN and SN loading through the middle of this decade is forecast to have additional capacity for new users. GN resources are easily expandable through commercial service providers as required. SN resources, while more limited in terms of expansion, allow higher individual resource utilization due to longer visibility and smaller apertures.

Mr. Levine discussed the GN Mission Model over the next three years (2001 to 2004). Mr. Levine noted that a lot of the service requirements are strictly launch and early orbit supports. Mr. Levine also discussed the SN Mission Model over the next three years. There have been new projects added, including Aqua and Aura. Mr. Levine stated that when a new mission comes along, an assessment is done to determine how requirements can be met without unduly impacting other customers. Mr. Levine stated that a clear statement of customer requirements is needed up front to prevent other customers from being impacted.

Mr. Levine stated that both GN and SN scheduling support is priority based. Priorities are established through a priority panel that is composed of NASA, CSOC, and Enterprise representatives. Both fixed and dynamic priorities are included with health and safety of all personnel/spacecraft being the primary concern. Priority lists are updated and published months in advance of each new user. The SN list is sent via e-mail. The GN list is online at http://www.wff.nasa.gov/~code452/prioritylist.html. Mr. Levine reviewed the Network Support, GN Support, and SN Support priority lists with meeting attendees. Regarding the Network Support Priority List, the top priority is emergency, followed by launches and critical supports. Regarding the GN and SN Support Priority Lists, the top priority is STS launch and landing support, followed by ELV launch support.

Mr. Levine discussed the GN X-/S-band Load Forecast, the SN SA Load Forecast, and the SN MAR Load Forecast. Mr. Levine stated that both GN and SN customer support resources are sufficient to meet current CSOC Mission Set commitments under most conditions. There will be certain periods of time during which contention for resources will occur. Some GN resource contentions can be expected during the following LEOP support periods:

a. March 2, 2002: Aqua and Landsat-7 during Aqua orbit boost phase.
b. May 2, 2002: Possible Aqua and IceSAT LEOP/activation/checkout overlap.

Some SN resource contentions can be expected during critical STS/ISS periods or dual SA-supported LEOPs (infrequent):

a. December 1, 2001: TIMED and STS-108/ISS.
b. February 2, 2002: HST Servicing Mission 3B.

XI. CLOSING COMMENTS

Mr. Levine thanked meeting attendees for a productive meeting and noted that the next MSCF meeting would be conducted in about 3 months (mid-February 2002). It is hoped to have a videoconference capability set up for this meeting. Mr. Levine asked attendees to fill out the comment form provided at the meeting and return it to him. Mr. Levine specifically asked meeting attendees to note on the form what presentations would be useful at the next MSCF meeting. Mr. Levine stated that presentations from NISN, the DSN, and service providers are needed. Mr. Levine also asked Ms. Barclay to provide a quick update on the DSMC schedule at the next meeting. Mr. Levine also suggested representation from compatibility testing at future MSCFs.

XII. ACTION ITEMS

ACTION ITEM: MSCF-11-15-01
ASSIGNEE(S): Shuby Ambardekar (GSFC CSR Manager) and Jon Walker (CCM)
ACTION: Look into generating an ICD between GSFC and the DSN.

ACTION ITEM: MSCF-11-15-02
ASSIGNEE(S): Steve Currier (WFF)
ACTION: Re-present commercial resources at the next MSCF meeting.

ACTION ITEM: MSCF-11-15-03
ASSIGNEE(S): Michele Crizer (GSFC/LandSAT-7)/John Grassel (GSFC/CSR)
ACTION: Update DMR and PSLA for Landsat-7.

ACTION ITEM: MSCF-11-15-04
ASSIGNEE(S): All Projects
ACTION: Ensure issues are raised sufficiently early to ensure that adequate time is available to address mission concerns (i.e., compatibility testing, requirements, etc.) and thus possibly avoid a need to form TIGER teams.

ACTION ITEM: MSCF-11-15-05
ASSIGNEE(S): NISN
ACTION: Provide a presentation on NISN status at the next MSCF meeting.

ACTION ITEM: MSCF-11-15-06
ASSIGNEE(S): Cathy Barclay (GSFC)
ACTION: Provide a quick update on the DSMC schedule at the next MSCF meeting.

ACTION ITEM: MSCF-11-15-07
ASSIGNEE(S): DSN
ACTION: Provide a presentation on DSN plans at the next MSCF meeting.

ACTION ITEM: MSCF-11-15-08
ASSIGNEE(S): Service Providers
ACTION: Provide a briefing for the next MSCF meeting.

(Original Approved By:)
All Levine
NASA/GSFC